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FINDING OF NO SIGNIFICANT IMPACT
TENNESSEE VALLEY AUTHORITY
SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT FOR THE POTENTIAL UPGRADE OF THE TENASKA SITE FOR ESTABLISHING A SIMPLE-CYCLE OR COMBINED-CYCLE ELECTRIC GENERATION FACILITY HAYWOOD COUNTY, TENNESSEE

Proposed Action and Need

The demand for total electrical power in the TVA power service area has been growing and continues to grow at a rate of about 600 MW (more than 2 percent) per year since the mid-1990s. Recent total peak demand for electricity in the TVA region has now exceeded more than 32,000 MW.

Additionally, reliability standards recently submitted to the Federal Energy Regulatory Commission by the North American Electric Reliability Council (NERC) in compliance with the Energy Policy Act of 2005 have required power companies to activate sufficient reserves to meet NERC's Disturbance Control Standard (DCS). Under this standard, recovery from loss of generation that is equal to or greater than 80 percent of the largest generator must be achieved within 15 minutes. NERC now requires firm capacity for DCS recovery events and no longer allows market purchases to be included as DCS recovery assets.

The TVA proposed action to install two M501F combustion turbines (CTs) and a General Electric steam turbine to build an approximately 600-megawatt (MW) intermediate to base load capacity combined-cycle (CC) plant at the Tenaska site in western Tennessee would help TVA to address both the needs for power supply and compliance with reliability standards.

Background

TVA prepared a Supplemental Environmental Assessment (EA) to the *Final EA for Potential Upgrade of the Tenaska Site for Establishing a Simple-Cycle or Combined-Cycle (CC) Electric Generation Facility, Haywood County, Tennessee (Tennessee Valley Authority [TVA] 2007).* The Tenaska site is an existing generation site, which was previously permitted and constructed for three CTs, which never operated due to the lack of transmission agreement for the facility. Subsequently, the CTs have been sold and removed from the site, and at this time, TVA has only been able to locate two CTs that can be utilized for this site. As discussed in the subject Supplemental EA, TVA has previously purchased the Tenaska site, but has not developed it.

Alternatives

TVA evaluated five options in the previous review, *Final Environmental Assessment for Potential Upgrade of the Tenaska Site for Establishing a Simple-Cycle or Combined-Cycle Electric Generation Facility, Haywood County, Tennessee* for upgrading for simple- or combined-cycle operations with CTs at the Tenaska Brownsville site. The options ranged from adding 360 MW of simple-cycle capacity to approximately 900 MW of combined-cycle capacity.

In this supplemental review,TVA evaluated two alternatives: the No Action Alternative and the completion of an approximately 600 MW CC plant at the Lagoon Creek site.

The No Action Alternative of not installing the additional capacity at the Tenaska site does not meet TVA's need for additional peaking and intermediate capacity, as well as the greater flexibility to address new reliability standards. If this facility had not been purchased, TVA would likely have to pursue greenfield construction at an increased cost and additional impact to the environment beyond reactivation of an existing vacated site with the existing infrastructure already in place.

The Action Alternative (TVA's preferred alternative) is to construct a new, highly efficient gas-fired CC CT plant adjacent to its Lagoon Creek CT facility near Brownsville, Tennessee, to meet future power demands. The new units would burn natural gas. If constructed, total capacity under standard conditions would be approximately 600 MW. These units would be permitted to operate in intermediate- to base-load mode; however, TVA's current projections indicate that the units would operate more toward the intermediate-load capacity.

Impacts Assessment

The different types of CTs that could be purchased for operation under the Action Alternatives include SC single fuel, SC dual fuel, or CC dual fuel. All three types of CTs would likely have similar air impacts, assuming similarity in the fuel used. However, a CC would likely operate at higher noise levels and require more groundwater because of the use of cooling towers and the need for boiler make-up water. Similarly, CCs would have a slightly greater impact on water quality as a result of the discharge of heat. TVA ruled out SC operation at the site because the economics and risks associated with delivery dates for the new turbines made the option infeasible.

CC operations would need to add selective catalytic reduction (SCR) for NOx control and potentially an oxidation catalyst to meet the New Source Performance Standards. Combustion-cycle operations would likely require a prevention of significant deterioration (PSD) permit, since such operation would be for intermediate capacity involving higher annual hours of operation.

The Tennessee State Historic Preservation Officer concurred that there are no National Register of Historic Places listed or eligible properties affected by this undertaking. With incorporation of the mitigation commitments noted below, all impacts from both construction and operation of this facility would be insignificant.

Public and Intergovernmental Review

The Draft Environmental Assessment was sent to the Tennessee Department of Environment and Conservation for review and was posted on TVA's external environmental review website with a request for comments.

Mitigation

The implementation of the proposed action would require the following commitments above and beyond typical regulatory requirements.

- Compressor wash water would be collected and disposed off site at an approved wastewater treatment facility.

- A biocide may be dosed to the cooling towers intermittently to control biological slimes in the cooling towers. If and when a biocide is added to the cooling towers, cooling tower blowdown would be halted for approximately four hours both to provide maximum effectiveness for the biocide and to prevent discharge of any significant amount of biocide.

Conclusion and Findings

TVA has reviewed the subject supplemental EA and determined that the potential environmental consequences of the proposed action have been addressed. TVA concludes that the Action Alternative is not a major federal action significantly affecting the quality of the environment. Accordingly, preparation of an environmental impact statement is not required.

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Date Signed